



PROFESSIONAL ENGINEERS



IN CALIFORNIA GOVERNMENT

April 11, 2007

The Honorable Peter DeFazio, Chairman
Subcommittee on Highways and Transit
Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington D.C. 20515

Testimony from
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Dear Representative DeFazio,

Thank you for inviting me, as a representative of Professional Engineers in California Government, to participate in the Subcommittee hearing on Tuesday, April 17. **Professional Engineers in California Government (PECG)** represents the 13,000 engineers and related professionals employed by the State of California. About 70% of those professionals work for the California Department of Transportation, or Caltrans, planning, designing, administering contracts, inspecting, and operating state highways, freeways, and other transportation systems. PECG represents their professional and employment interests.

PECG supports additional funding for transportation infrastructure, regardless of source, including private funds, and has no position on toll roads. However, we have found that the **procedures used in achieving project delivery have a profound impact on cost, safety, timeliness, and the public interest.**

There are at least ten distinct project delivery procedure alternatives, ranging from the traditional design-bid-build to design-build, construction management, and various others. These are often combined with funding strategies -- for example, a public-private partnership may utilize design-build, perhaps including construction inspection as well, using private funding which is ultimately reimbursed through tolls.

To address these various project delivery methods, PECG established a **set of principles or "Bill of Rights for Transportation Users"** to use as criteria in evaluating various project delivery proposals. There are five elements to this Bill of Rights.

1. Ensure that **taxpayers get their money's worth** for their transportation dollars -- the most projects, at the lowest cost, delivered on time.

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2. Safety first! Construction inspection should be performed by **public servants** accountable to the public, not private contractors motivated by profit.

3. Construction contracts for transportation projects should be **competitively bid**, with contracts awarded to the lowest responsible bidder, not subjectively selected.

4. All tolls paid for transportation should be **reinvested in the system** for the public's benefit, not siphoned off for private profit.

5. If an agency will be liable for a transportation facility, that agency should be **responsible** for designing, constructing, and inspecting the facility.

Unfortunately, some of the procurement methods -- whether privately or publicly funded -- have been far less effective than the traditional design-bid-build process in which publicly-employed engineers design and inspect transportation facilities, awarding a competitively bid contract to a private firm to construct it. In California, **billions of** federal, state, and local transportation **tax dollars have been wasted** on ineffective procedures, ranging from the disastrous Red Line subway in Los Angeles to several more recent design-build highway projects. In all cases where **design-build** or a similar approach was utilized, the **projects cost more than twice as much** as the work was worth (compared to design-bid-build); project delivery was not accelerated; and in some cases, defects in construction were discovered and corrected later at considerable expense.

The enclosed material describes two public-private partnership projects (Route 91 express lanes and Route 125 San Diego toll road) and two publicly-funded projects (the Route 22 Garden Grove freeway and the Route 73 San Joaquin Hills tollway) in California. In all four cases, the design-build approach was utilized, with the consortium also inspecting the work. In all four cases, costs were more than double what had been projected initially. Three of the four projects required either taxpayer bailouts or an extension of the period for toll receipts for the contractor. Two of the four projects were scheduled to be completed last year but are still not open to traffic.

As the projects all utilized private inspectors, there was no meaningful public involvement, so it should not be surprising that some of the construction work was defective.

Design-build costs far more than design-bid-build for several reasons. In design-build, contractors are typically not selected through competitive bidding; their lump sum price proposal is inflated to absorb risks because they don't know what they'll be building; and subsequent change orders drive the price up even further because unforeseen circumstances arise when a construction contract is awarded before design is complete.

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In summary, Boston's "Big Dig" may be the national poster child for the failure of an approach which omits procedures which protect the public and taxpayer interest, but it is certainly not unique. **Design-build and similar methods are procedures which shouldn't work in theory and haven't worked in practice.**

Using design-build under a public-private partnership only makes the problem worse because, due to private funding, the involvement by the public agency in the process is typically even less. Only later, when taxpayer bailouts and costly repairs are undertaken, and it is discovered that the toll structure is not adequate to support a project that costs twice what had been anticipated, do the taxpayer and the public interest become involved.

Enclosed are materials describing more fully the "Bill of Rights" provisions, the analysis of the California projects using public-private partnerships and design-build, and a recent presentation to the National Surface Transportation Policy and Revenue Study Commission regarding safe, cost effective expenditures of federal transportation funds.

Once again, thank you for the invitation to provide this material and to participate in the April 17 hearing.

Sincerely,

Bruce J. Blanning
Executive Director

Encl.



PROFESSIONAL ENGINEERS

IN CALIFORNIA GOVERNMENT

February 22, 2007

To: National Surface Transportation Policy and Revenue Study Commission

From: Josh Golka, Representing the Professional Engineers in California Government

Subject: Ensuring Safe, Cost Effective Expenditures of Federal Transportation Funds

Federal transportation funds are being wasted at an alarming rate, and the pace is increasing! In California, 2006 was the year of infrastructure. SAFETEA-LU increased federal transportation funding in California and nationally. Then, in November, California voters approved a \$19.9 billion infrastructure bond, plus ensured that another \$1.8 billion per year in sales tax on gasoline will be used for transportation. In several counties, voters approved an increase in sales tax for transportation.

Unfortunately, on many projects, half of that money is being wasted on unsafe facilities with high maintenance and repair costs. As the "Big Dig" shows us, this is a national problem, not just one in California.

The culprit? Misguided contracting procedures.

Imagine, if you will, a procedure in which qualified engineers design a transportation facility -- either experienced state engineers or the most qualified engineering firm. Then, after a complete set of plans and specifications is developed, qualified contractors compete for the right to build the project, using a competitive bidding system that awards the contract to the lowest responsible bidder. Finally, the construction is inspected by engineers who work for and are loyal to the public, not a private firm pursuing the profit motive.

That system isn't hard to imagine. It has worked in California and elsewhere for decades.

Now imagine this system. A construction company is awarded a contract without competitive bidding. The construction company, not a public agency, selects the design firm. The construction company must submit an estimated price for doing the work. Because the project hasn't been designed yet, it is full of risks and uncertainties, which inflates the price. Finally, the construction company is allowed to hire inspectors who will tell the construction company if its work is acceptable. During construction, costs escalate rapidly.

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That's called "design-build". It's an obvious recipe for disaster. It's a process which shouldn't work in theory, and without exception in California, hasn't worked in practice.

Every design-build project to date -- Routes 91, 73, 22, and 125 -- **have more than doubled in cost** from the original estimate. **None have been completed ahead of schedule.** Three out of four of those projects required substantial taxpayer bailouts, even though two of them were public-private partnerships which were supposed to place the risk on the private consortium, not the taxpayer. The fourth project was supposed to open last year, but still hasn't been completed, as the cost on Route 22 increased from \$270 million when it was supposed to use competitive bidding; to \$390 million when the contract was awarded for design-build; to more than \$550 million and still counting.

You will hear from the Orange County Transportation Authority that Route 22 is a success story, blaming everyone except themselves and the process they used for the doubling of the cost. They will also admit that \$207.5 million was spent by the taxpayers to buy out the public-private partnership on Route 91, which was constructed for \$139 million. They don't mention that the project was supposed to cost \$57 million. In 1995, the maximum toll on that project was \$2.50, which the Orange County Register reported as "the nation's highest per mile toll". Today, the maximum toll is \$9.25.

The collapse of Hollywood Boulevard during the Red Line Subway construction in Los Angeles several years ago was another example of private design, private construction, and private inspection, with almost unbelievable construction defects. Ten thousand defective welds on the earthquake retrofitting of the 8-805 Interchange in San Diego was another disastrous example of private inspectors. Of course, the design, construction, and inspection failures by private firms on Boston's "Big Dig", along with the death of a woman passenger in the tunnel underneath the collapsing concrete slab, is but the latest sorry legacy for that project, completed years late at five times the original cost.

On Monday, the LA Times reported on the Gold Line elevated station. The same firm that built the "Big Dig" built that one. Chunks of concrete are falling off. Failures are being attributed to shear keys built shorter than they were designed, deviations in steel reinforcing bars, and other problems. As is typical in these projects, the contractors point the finger at the public agency, in this case MTA, which has agreed to make the necessary repairs, even though MTA didn't design, build, or inspect the project.

Even when Caltrans awards construction contracts through competitive bidding, there is still a question regarding who will prepare the plans and specifications. Based on Caltrans data, **a state engineer costs \$105,000 per year**, including pay, benefits, and overhead; **an outsourced engineer costs \$193,000**. Nevertheless, despite the passage of Prop 1B last November, **Caltrans is still refusing to hire** even enough engineers to replace attrition, must less undertake

what the Legislative Analyst says is a crucial role in delivering \$12 billion in additional highways requiring an additional 4800 Person-Years of staff. This refusal to hire guarantees that it will ultimately require nearly twice as many federal and state tax dollars to design and inspect these construction projects.

As reported in a recent New York Times editorial and article, the Federal Government is having the same experience. Outsourced services cost \$200,000 per Person-Year, double the cost of using a federal employee. As Representative Henry A. Waxman of California recently observed, "Billions of dollars are being squandered, and the taxpayer is being taken to the cleaners" as a result of federal outsourcing.

In summary, the outsourcing procedures currently utilized by Caltrans and regional and local transportation agencies, particularly regarding design-build, have proven to be not only wasteful in every instance, requiring taxpayer bail-outs, but result in defective construction for which the taxpayers must foot the bill. It is time for the Federal Government, and all taxpayers, to go back to competitive bidding for construction contracts and construction inspection by those who work for the public, not the profit motive.

Bill of Rights for Transportation Users

To Ensure Safe, Cost-Effective, Timely Project Delivery, In the Public Interest, Taxpayers and Commuters Have the Following Rights:

BIGGER BANG FOR THE BUCK! Taxpayers should get their money's worth from their transportation dollar: the most projects, at the lowest costs, delivered on time.

SAFETY FIRST! Public safety should not be for sale. To ensure public safety, construction inspection should be performed by public servants accountable to the public, not private contractors motivated by profit.

COMPETITIVE BIDDING! Construction contracts for transportation projects should be competitively bid, not subjectively selected.

TOLLS SHOULD BENEFIT TRANSPORTATION USERS! All tolls paid for transportation should be reinvested in the system for the public's benefit, not siphoned off for private profit.

LINK LIABILITY AND RESPONSIBILITY! If an agency will be liable for a transportation facility, it should be responsible for designing, constructing and inspecting it.

THE WRONG WAY TO DELIVER TRANSPORTATION PROJECTS:

**WRONG
WAY**

Design-Build, Public-Private Partnerships and Outsourcing Engineering Work Have Already Failed in California

**DO NOT
ENTER**

Legislative proposals to authorize design-build procurement, expand so-called public private partnerships, and increase outsourcing of state engineering work threaten public safety, eliminate competitive bidding, and waste bond dollars. In short, they've been complete failures in California and around the country.

engineering services. Testimony that day found that the state pays \$105,000 per year for a state engineer and \$178,000 for a private consultant to do the same work.

For example:

Design-Build Procurement Eliminates Competitive Bidding and as a result greatly increases project costs. By allowing private contractors to inspect their own work, design-build also threatens public safety. In California, State Routes 22, 73, 125 and 91 are all design-build projects that have been delayed, come in at twice the expected cost or required public bailouts.

*Outsourcing Engineering
Work Threatens Public Safety
and Wastes Millions*

SR 22 (Garden Grove Freeway). Orange County Transportation Authority's design-build project to build twelve miles of car-pool lanes on SR 22 was supposed to have been completed and open in 2006, but work continues in 2007. Since the decision was made to use design-build for the project, the cost increased from \$271 million to \$550 million!

Public-Private Partnerships (the Fancy Name for Toll Roads) Have Proven to be Taxpayer Rip-Offs in California. State Routes 125 and 91 – public-private toll roads – have required public bailouts and operate with some of the highest tolls in the country. If policy makers determine that toll roads are necessary, toll revenues should be reinvested in our transportation system and not be used to boost profits of foreign banks and multi-national consortiums.

*Design-Build
Procurement Eliminates
Competitive Bidding*

SR 91 (Express Lanes). Constructed in 1995, the design build, privately owned Express Lanes runs through the middle of the congested Riverside Freeway. In 2002, the Orange County Transportation Authority had to buy the tollway because of an extraordinary non-compete clause that did not allow for improvements on the non-toll lanes. The result is that taxpayers were forced to "assume the turnpike's debt of \$135 million and pay the company \$72.5 million in cash," in part because design-build increased the cost from \$57 million to \$130 million.

Outsourcing Engineering Work Threatens Public Safety and Wastes Millions. The 2007-2008 Budget calls for a \$1.5 billion increase in transportation funding, yet it proposes reducing state engineering positions. By reducing staff, the administration is advocating outsourcing millions of dollars of state engineering work. The vast majority of this outsourced work will be inspection and oversight of state highway construction – including the inspection of the Bay Bridge Tower! This will **allow private inspectors to inspect the work of private contractors** – the same process used on Boston's disastrous and deadly Big Dig. Public safety should not be for sale.

SR 73 (San Joaquin Hills Tollway).

According to the Los Angeles Times, on November 10, 2005, the SR 73 design-build tollway required a \$1.16 billion bailout package by Orange County officials. The \$1.5 billion design-build tollway opened in 1995 and has been "plagued by lower-than-projected traffic and revenue."

SR 125 (San Diego Toll Road). In 2003, this public-private partnership toll road was supposed to cost \$360 million and be completed in 2006.

Currently, costs have ballooned to \$800 million and completion is nowhere in sight. 2006 legislation extended the tolls to be provided to the private entity by an additional ten years to help pay for the cost overruns, requiring the public to pay "hundreds of millions of dollars in additional tolls," according to the Department of Finance.

*Public-Private Partnerships
(the Fancy Name for Toll Roads
for Profit) Have Proven to Be
Taxpayer Rip-Offs*

Outsourcing this work will also waste critical resources. During a Budget Conference Committee hearing in 2004, the Department of Finance representative testified that "it costs more money" to contract out



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State Route 22 HOV Lane Design Build Failure

	Estimated Cost	Estimated Completion Date
August 2002 Design-Competitive Bid- Build Estimate:	\$271 million¹	Late 2006¹
August 2004 Design-Build Contract Award Amount:	\$390 million²	Late 2006²
Current:	\$549.6 million³	Mid 2007

NOTE: Although SR 22 was suppose to open on November 30, 2006, it missed its mark and Orange County taxpayers still get almost daily notifications of full freeway closures during overnight hours.⁴

¹ Caltrans SR-22 Project Report, August 2002 Construction Estimate

² Granite Construction Press Release, August 24, 2004

³ Orange County Register Article, "22 Widening Still to Finish on Time," April 4, 2006

⁴ OCTA Press Releases

Route 91 Express Lanes Public-Private Partnership Failure

	Estimated Cost	Estimated Completion Date
July 1993 Design-Build "Fixed Price" Contract Award:	\$57 million¹	Late 1995¹
December 1995 Actual Cost:	\$130 million²	December 1995²

Consequence: Taxpayers were forced to buy out the express lanes for **\$207.5 million**; OCTA assumed the Tollway's debt of \$135 million and paid the company \$72.5 million³

Tolls

1995 Tolls: 25¢ to \$2.50 – "the nation's highest per mile toll"⁴

Current Tolls: \$1.15 to **\$9.50⁵**

¹ Center for Design Informatics, Harvard Design School 2002 Report, "State Route 91 Express Lanes"

² California Department of Transportation Website, "AB 680 Private Toll Road Program," 8/29/2005

³ The Orange County Register, "OCTA Acts to Relieve 91 Congestion – Board Votes to Buy Express Lanes," 11/26/2002

⁴ The Orange County Register, "New Toll Road Fees Based on Traffic," October 24, 1995

⁵ The Orange County Register, "91 Freeway's Top Toll Hits Nearly \$1 a Mile," April 6, 2007

April 2007

Route 125 Toll Road Public-Private Partnership Failure

February 17, 2000

Initial Estimate:

(San Miguel Road to Otay Mesa Road)

\$260 million / Early 2003¹

May 2003

Design-Build Contract:

(SR 125 Tollway: San Miguel Road to Otay Mesa Road)

("Gap and Connector")

\$270 million / Fall 2006²

\$90 million / Fall 2006

March 2006

(Both Extension and "Gap and Connector")

\$800 million / January 2007³

As of April 11, 2007, SR 125 Tollway and "Gap and Connector" project is not completed. Info on the SANDAG Website still indicates the tollway will be open in "early 2007," with no more specific information given.

In 2006, SB 463 extended the tolls to be awarded to the private entity by an additional 10 years, requiring the public to pay "hundreds of millions of dollars in additional tolls," according to the Department of Finance⁴

¹ San Diego Union Tribune Article, "Toll Road's Environmental Record Mixed." February 17, 2000

² Washington Group International Press Release, "Washington Group-led Joint Venture Wins \$270 Million Design-Build Contract for San Diego Toll Road." May 28, 2003

³ San Diego Union Tribune Article, "Route 125 on Track for '07 Completion." March 4, 2006

⁴ Senate Rules Committee Analysis, August 31, 2006

San Joaquin Hills Tollway (Route 73) Design-Build Failure

	Estimated Cost	Estimated Completion Date
February 1988 Original Cost Estimate:	\$380 million¹	Mid 1991¹
November 1992 Design-Build Cost Estimate:	\$778 million²	1995³
November 1996 Actual Cost:	\$1.5 billion⁴	November 1996⁴

Consequence: Taxpayers were forced to bail out the struggling tollway with **\$1.16 billion** in loans and payments

¹ OC Register Article, "State Offers Aid for OC Toll Road," February 27, 1988

² OC Register Article, "Coastal Panel Oks Tollway's Wetlands Route," November 19, 1992

³ OC Register Article, "Toll-Road Agency Displays Proposals for Laguna Canyon," October 18, 1990

⁴ Los Angeles Times Article, "O.C. Shopping Centers Vie to Exploit Tollway," November 21, 1996